

Listing of the Claims

This listing of the claims will replace all prior versions, and listings, of claims in the Application:

1-29 (Cancelled)

30. (Currently Amended) A lead-acid cell for ~~[[a]]~~ an SLI battery configured for use in vehicle applications of a type comprising a container, at least one positive plate and at least one negative plate disposed within the container, ~~[[a]]~~ at least one separator disposed within the container ~~and separating to separate~~ the at least one ~~positive~~ negative plate and the at least one ~~negative~~ positive plate, ~~the positive plate~~ comprising:

a thin grid supporting structure for the positive plate formed by book mold gravity casting and having a layer of active material coupled thereto~~[[,]]~~; and

wherein the thin grid supporting structure comprises ~~comprising~~: a lead-based alloy comprising

lead;

tin in the range of about 0.8~~[[%]]~~ percent to about 1.1~~[[%]]~~ percent;

calcium in an amount such that the ratio of tin to calcium is greater than about 12:1;

silver in the range of greater than 0 to ~~[[about]]~~ less than 0.015~~[[%]]~~ percent;

wherein the percentages of tin, calcium, and silver ~~in the grid supporting structure formed by book mold gravity casting~~ are based upon the total weight of the lead-based alloy.

31. (Currently Amended) The cell as defined in ~~[[claim]]~~ Claim 30~~[[,]]~~ wherein the ratio of tin to calcium is not less than 15:1.

32. (Currently Amended) The cell as defined in ~~[[claim]]~~ Claim 30~~[[,]]~~ wherein the ratio of tin to calcium is not less than 20:1.

33. (Currently Amended) The cell as defined in [[claim]] Claim 30[[,]] wherein [[the]] silver ~~content of the alloy~~ is in the range of about [[0.0005%]] 0.003 percent to [[about]] less than [[0.015%]] 0.0124 percent.

34. (Currently Amended) The cell as defined in [[claim]] Claim 31[[,]] wherein [[the]] silver ~~content of the alloy~~ is in the range of about [[0.0005%]] 0.003 percent to [[about]] less than 0.015[[%]] percent.

35. (Currently Amended) The cell as defined in [[claim]] Claim 32[[,]] wherein the silver content of the alloy is in the range of about [[0.0005%]] 0.003 percent to [[about]] less than 0.015[[%]] percent.

36. (Currently Amended) The cell as defined in [[claim]] Claim 30[[,]] wherein [[the]] calcium is present in an amount of about 0.03[[%]] percent to about 0.055[[%]] percent and the ratio of tin to calcium is not less than 15:1.

37. (Currently Amended) The cell as defined in [[claim]] Claim 36[[,]] wherein silver is present in a range of about [[0.0005%]] 0.003 percent to [[about]] less than 0.015[[%]] percent.

38. (Currently Amended) The cell as defined in [[claim]] Claim 30[[,]] wherein calcium is present in an amount of about 0.03[[%]] percent to about 0.055[[%]] percent and the ratio of tin to calcium is not less than 20:1.

39. (Currently Amended) The cell as defined in [[claim]] Claim 38[[,]] wherein silver is present in a range of about 0.008[[%]] percent to [[about]] less than 0.015[[%]] percent.

40. (Currently Amended) The cell as defined in [[claim]] Claim 30[[,]] further including from about 0.008[[%]] percent to about 0.03[[%]] percent aluminum.

41. (Currently Amended) The cell as defined in [[claim]] Claim 30[[,]] contained in a maintenance free battery.

42. (Currently Amended) The cell as defined in [[claim]] Claim 30[[,]] contained in a sealed battery.

43. (Currently Amended) The cell as defined in [[claim]] Claim 30[[,]] wherein the container, positive and negative plates and the separator comprise an automotive battery.

44. (Currently Amended) A grid supporting structure for use in a lead-acid battery cell for an SLI battery configured for use in vehicle applications having at least one positive plate and at least one negative plate disposed within a container, a separator disposed within the container and separating the at least one positive plate and the at least one negative plate, the grid supporting structure formed by book mold gravity casting and having a layer of active material pasted thereto, the grid supporting structure comprising:

at least one thin positive plate formed by book mold gravity casting comprising a lead-based alloy consisting essentially of

lead;

tin in the range of about 0.8[[%]] percent to about 1.1[[%]] percent;

calcium in an amount such that the ratio of tin to calcium is greater than about 12:1;

silver in the range of greater than 0 to less than 0.015[[%]] percent;

wherein the percentages ~~in the grid supporting structure formed by book mold gravity casting~~ are based upon the total weight of the lead-based alloy;

so that the at least one thin positive plate formed by book mold gravity casting is configured to have a layer of active material pasted thereto for assembly of the SLI battery.

45. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 44[[,]] wherein the ratio of tin to calcium is not less than 15:1.

46. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 44[[,]] wherein the ratio of tin to calcium is not less than 20:1.

47. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 44[[,]] wherein [[the]] silver ~~content of the alloy~~ is in the range of greater than about 0[[%]] to about 0.0124[[%]] percent.

48. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 45[[,]] wherein [[the]] silver ~~content of the alloy~~ is in the range of greater than about 0[[%]] to about 0.0124[[%]] percent.

49. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 46[[,]] wherein [[the]] silver ~~content of the alloy~~ is in the range of greater than about 0[[%]] to about 0.0124 percent [[0.015%]].

50. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 44[[,]] wherein calcium is present in an amount of about 0.03[[%]] percent to about 0.055[[%]] percent and the ratio of tin to calcium is not less than 15:1.

51. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 50[[,]] wherein silver is present in a range of about 0[[%]] to [[about]] less than 0.015[[%]] percent.

52. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 50[[,]] wherein calcium is present in an amount of about 0.03[[%]] percent to about 0.055[[%]] percent and the ratio of tin to calcium is not less than 20:1.

53. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 52[[,]] wherein silver is present in a range of about 0.008[[%]] percent to less than 0.015[[%]] percent.

54. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 44[[,]] further including from about 0.008[[%]] percent to about 0.03[[%]] percent aluminum.

55. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 44[[,]] contained in a maintenance free battery.

56. (Currently Amended) The grid supporting structure as defined in [[claim]] Claim 44[[,]] contained in a sealed battery.

57. (Currently Amended) A plate formed by book mold gravity casting into a thin grid supporting structure for use in a lead-acid cell for an SLI battery configured for use in vehicle applications ~~battery~~ comprising:

a lead-based alloy consisting essentially of

lead;

tin in an amount of about 0.8[%] percent to about 1.1[%] percent;

calcium in an amount such that the ratio of tin to calcium is greater than about 12:1;

silver in an amount of greater than 0 to ~~[[about]]~~ less than 0.015[%] percent;

wherein the percentages of tin, calcium, and silver ~~in the plate formed by book mold gravity casting~~ are based on the total weight of the lead based alloy.

58. (Currently Amended) The ~~positive~~ plate of Claim 57 wherein ~~[[the]]~~ silver is in an amount of ~~[[about 0.0005%]]~~ greater than 0 to ~~about~~ ~~[[0.012%]]~~ less than 0.0124 percent.

59. (Currently Amended) The ~~positive~~ plate of Claim 58 wherein ~~[[the]]~~ silver is in an amount of about ~~[[0.0005%]]~~ 0.003 percent to about ~~[[0.015%]]~~ 0.0124 percent.

60. (Currently Amended) The ~~positive~~ plate of Claim 59 wherein ~~[[the]]~~ silver is in an amount of about ~~[[0.005%]]~~ 0.003 percent to less than 0.0124 percent ~~[[0.015%]]~~.

61. (Currently Amended) The ~~positive~~ plate of Claim 58 wherein ~~[[the]]~~ silver is in an amount of about ~~[[0.005%]]~~ 0.008 percent to less than 0.015[%] percent.

62. (Currently Amended) The ~~positive~~ plate of Claim 57 wherein ~~[[the]]~~ silver is in an amount of ~~[[greater than 0]]~~ about 0.008 percent to ~~[[less than 0.015%]]~~ about 0.0124 percent.

63. (Currently Amended) The plate of Claim 58 wherein ~~[[the]]~~ calcium is in an amount of about 0.03[%] percent to 0.055[%] percent.

64. (Currently Amended) The plate of Claim 58 wherein the ratio of tin to calcium is not less than 20:1.

65. (Currently Amended) The plate of ~~claim~~ Claim 58 wherein calcium is present in an amount of about 0.03[%] percent to about 0.055[%] percent and the ratio of tin to calcium is not less than 15:1.

66. (Currently Amended) The plate of ~~claim~~ Claim 58 wherein calcium is present in an amount of about 0.03[[%]] percent to about 0.055[[%]] percent and the ratio of tin to calcium is not less than 20:1.

67. (Currently Amended) The [[plat]] plate of Claim 58 further comprising about 0.008[[%]] percent to 0.03[[%]] percent aluminum.

68. (Currently Amended) The plate of ~~claim~~ Claim 58 wherein the silver is in an amount of greater than 0 to about 0.0124 percent ~~plate is contained in a maintenance-free battery.~~

69. (Currently Amended) The plate of Claim 58 wherein the silver is in an amount of greater than 0.003 percent to less than 0.0124 percent ~~plate is contained in a sealed battery.~~

70. (Currently Amended) The plate of Claim 57 ~~[[59]] wherein the~~ further comprising an active material is comprising a paste.

71. (Currently Amended) The ~~lead-acid~~ cell of Claim 30 wherein ~~[[the]]~~ silver is in an amount of about 0.003 percent ~~[[0%]] to [[less than 0.015%]]~~ about 0.0124 percent.

72. (New) A plate formed by book mold gravity casting into a thin grid supporting structure for use in a lead-acid cell for an SLI battery configured for use in vehicle applications comprising:

a lead-based alloy consisting essentially of

lead;

tin in an amount of about 0.8 percent to about 1.1 percent;

calcium in an amount such that the ratio of tin to calcium is greater than about 12:1;

silver in an amount of greater than 0 to about 0.0124 percent;

wherein the percentages of tin, calcium, and silver are based on the total weight of the lead based alloy.

73. (New) The plate of Claim 72 wherein silver is in an amount of greater than 0 to less than 0.0124 percent.

74. (New) The plate of Claim 73 wherein silver is in an amount of about 0.003 percent to about 0.0124 percent.

75. (New) The plate of Claim 74 wherein silver is in an amount of about 0.003 percent to less than 0.0124 percent.

76. (New) The plate of Claim 73 wherein silver is in an amount of about 0.008 percent to less than 0.015 percent.

77. (New) The plate of Claim 72 wherein silver is in an amount of about 0.008 percent to about 0.0124 percent.

78. (New) The plate of Claim 73 wherein calcium is in an amount of about 0.03 percent to 0.055 percent.

79. (New) The plate of Claim 73 wherein the ratio of tin to calcium is not less than 20:1.

80. (New) The plate of Claim 73 wherein calcium is present in an amount of about 0.03 percent to about 0.055 percent and the ratio of tin to calcium is not less than 15:1.

81. (New) The plate of Claim 73 wherein calcium is present in an amount of about 0.03 percent to about 0.055 percent and the ratio of tin to calcium is not less than 20:1.

82. (New) The plate of Claim 73 further comprising about 0.008 percent to 0.03 percent aluminum.

83. (New) The plate of Claim 72 further comprising an active material comprising a paste.